Southern California Association of Marine Invertebrate Taxonomists

3720 Stephen White Drive
San Pedro, California 90731

May, 1994 Vol. 13, No.1

NEXT MEETING:	Nemerteans, Platyhelminthes, and Parvilucina (revisited)
GUEST SPEAKER:	none
DATE:	June 13, 1994
TIME:	9:30am - 3:00pm
LOCATION:	Cabrillo Marine Aquarium San Pedro, CA

JUNE 13 MEETING

The main goal of the June meeting will be to consider and attempt to standardize provisional names in the Nemertea and Platyhelminthes prior to sampling during the SCBPP. This will include any taxa taken from within the 10-200m zone examined in the pilot project, and not just taxa already on the SCAMIT Taxa List.

Please bring any voucher sheets you have created, and specimens, if possible, along with specimens of any taxa in these groups to which you apply names with uncertainty. It is intended that voucher sheets for provisionals will be duplicated and distributed at the meeting so that we are all prepared to recognize these species if we encounter them. If time permits we will return to the question of whether or not two distinct species of *Parvilucina* occur in our sampling area.

Cerebratulus lineolatus (from Coe 1905)

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Announcement
(passed on by Tom Parker, CSDLAC)

A call was received from Mr. Zack Hymanson, a member of the California Coastal Commission staff, requesting volunteers to participate in resource evaluations for the Commission. They particularly need assistance in the southern California area with sessile biota of rocky substrata. Potential evaluations should be in intertidal, subtidal or wetlands habitats. If you are able to help them contact him @ (415)904-5253.

Call For Specimens

President Velarde received a request from Dr. C. O. Coleman in Germany for amphipod specimens in the families Argissidae, Hyperiopsidae and Vitjazianidae. He requires ten or more specimens from each family (location, species unimportant) to further his studies of functional morphology of the gut in amphipods. I can supply him specimens in the Argissidae (and will do so), but I can't help with the other two families. Specimens can be sent to Don Cadien at CSDLAC for forwarding, or directly to Dr. Coleman at:

Dr. Charles Oliver Coleman
Morphologie der Tiere
Fakultät für Biologie
Universität Bielefeld
P.O.Box 100131
D-33501 Bielefeld
Germany

Adoption of SCAMIT Taxa List Nomenclature

Please recognize that there are database ramifications of adopting the nomenclatural base of the SCAMIT Taxonomic Listing for use in continuing programs. Immediate adoption may not be the best option. The list contains numerous changes, and once adopted will require that some data bridge be constructed to allow connection of the old and newly modified taxa names. At CSDLAC we change the name in the historic database to conform to current usage. Other methods are also workable.

MINUTES FROM MEETING ON MAY 9

Dr. Jodi Martin, curator of Crustacea at NHMLAC, gave a workshop on biological illustration. He outlined several methods of illustration. They are:

1) Grid
This method involves placing a specimen under a microscope that has a fixed ocular grid in it. Enlarged graph paper is then used to draw on. By drawing the image a square at a time an accurate illustration can be achieved. This method works well for animals that are flat, like amphipods, but is very time consuming.

2) Wall projector
This method involves using a special wall projector that attaches to a microscope and projects the image of the animal from the microscope to the wall. This helps to see details better and then the organism can be more accurately traced. The major drawback of this method is that you need to have access to a wall projector.

3) Photograph
Another general method that can be used is tracing from a photograph. The photograph could even be enlarged to see details or specific areas of interest. The drawbacks are the time involved to take and develop the photographs and the expense.

4) Camera lucida or drawing tube
This is probably the most common method used for biological illustrations. A drawing tube that attaches to a microscope and superimposes the image of your hand and the pencil in the microscope over the image of your subject, so you can trace the animal on to paper placed next to the scope. This method is not always good for large animals because they have to be drawn in sections requiring movement and realignment of your paper.

Below are some **tips and techniques** suggested by Dr. Martin for use with a drawing tube.

1. The animal that you are drawing should be in some sort of liquid. The liquid not only keeps the animal from drying out, but helps reduce glare. Glycerol is the best. The animal will be more stationary in glycerol than alcohol. The animal must be completely covered with liquid or distortion will be evident around the high points.

2. The lighting of the subject and drawing surface must be balanced. It's best to set the light on the paper first and then adjust the lighting on the microscope, as needed.

3. The biggest problem with a drawing tube is parallax. This can be overcome by finding a medium point of focus and drawing as much as you can without readjusting the focus. If you shift the focus between different body parts their proportions will be altered. For areas that are slightly out of focus draw points to indicate lengths and draw the general outline of the area and wait to fill in the detail later away from the drawing tube.

4. Before making your drawing you should consider the size. The drawing shouldn't be larger then twice the intended published size. This is because detail will be lost when it is reduced.

5. The drawing tube can be very tiring and causes eye strain if used for more than an hour or two. Because of this Dr. Martin finds it very useful to take lots of notes directly on the drawing paper and use these to help him fill in the detail later. He also finds it easier to only draw one side of a seta, hair, or spine to show the length and point of insertion and later, when away from the drawing tube, he fills in the other side. Be careful not to draw in structures that aren't there, like broken setae. If a structure is broken or missing it should be drawn that way. This is especially important when referring back to the specimen after the illustration has been completed and published.

6. You might want to consider drawing only diagnostic body parts, instead of the whole animal. This might save a great deal of time, especially if the whole animal is not needed for scientific purposes.

7. Dr. Martin prefers to draw the first image on xerox or photocopy paper with a regular #2 pencil and then he traces over it in ink.

8. And last, but not least, Dr. Martin feels it is much more important to be accurate and fast on any scientific illustration, than aesthetically pleasing.

After the first image is drawn Albanene tracing paper size 11 x 14 can then be used to trace over the image in ink. Use either a rapidograph or some other sort of permanent ink pen. Dr. Martin prefers a pen made by Faber-Castel, which has a top that unscrews so tap water can be added to keep it from clogging. CSDLAC has found great success using Pigma Micron pens from BioQuip. They are available in a 6-pack nib size assortment from 005 to 08 for about $4.95. They can also be purchased separately. These pens are also great for labelling and are not only waterproof and fadeproof, but permanent in alcohol. Here is BioQuip's address and phone for those of you not familiar with it.

BioQuip
17803 LaSalle Avenue
Gardena, CA 90248-3602
Phone: (310) 324-0620
Fax: (310) 324-7931

(And for those of you wondering, neither CSDLAC nor SCAMIT are getting any kickbacks for this free advertisement. At least not yet.)

As for nib size Dr. Martin uses 000 and 0. It is not wise to go below a 000 because it will not reproduce well. The best suggestion is to find an ink pen you like that works with the paper you prefer and STICK WITH IT!

For mistakes made on an ink drawing White-out or Liquid Paper works great. Try to get it as flat as possible and be aware that it is very

absorbent and this could slightly change the diameter of your lines and points. White tape can be used if larger areas must be blocked out.

Dr. Martin cautioned SCAMIT members in the use of stippling in illustrations. It needs to be made clear in the illustration what the stippling has been used for, whether it is for contouring and shading or to indicate the coloring on the specimen. This can be done by using different size pens or by using cut-out stippling paper for the contours and an ink pen to indicate the pigment areas of the animal.

Also, the nature of the stippling could be directly stated in the text.

After the ink drawing is completed it is ready for mounting. This is done by using a spray adhesive. 3M makes one that is less sticky, allowing your drawing(s) to be repositioned if needed. After it is mounted it is wise to photocopy and reduce it to actual publication size. This allows you to see if it looks fine the way it will be published. Also, you should always compare your final drawing with the actual specimen to check for accuracy.

As for labelling, the journal of publication needs to be considered because often there are requirements or restrictions. The most commonly used alphabet sets are Chartpak and Letraset. However, a cheaper way to go is to use a laser printer and print out as many individual letters as needed and use spray adhesive to attach them.

Eric Vetter on leptostracans

In addition to the scheduled presentation by Dr. Martin, we were addressed by Eric Vetter (Scripps Institution of Oceanography) on his investigations with leptostracans. Eric distributed preprints of a paper describing a second species in the genus *Nebalia* from local waters. This paper has been accepted by *Crustaceana*, but will not be published for several years yet. In consequence we will not distribute the preprint with the newsletter (copies may be available from the author), and will refer to this new species as *Nebalia sp A* of SCAMIT until the paper is published. A SCAMIT voucher sheet for this taxon is in preparation, and will be distributed with the next newsletter.

Eric indicated that during his ecological investigations of leptostracans he had encountered three distinct species in our area. One of these is the taxon we have been calling *Nebalia pugettensis*. Eric suspects that this is actually a complex of forms, none of which fully correspond to the true *Nebalia pugettensis* of the Oregonian Province. They occur in extremely high densities in localized areas of organic enrichment.

The second species (*Nebalia sp A* of SCAMIT) is fairly easily differentiated from members of the *N. pugettensis* complex by the structure of the eye in both sexes. In *N. sp. A* the eye has a long supraorbital plate which extends out over the entire length (♀) or most of the length (♂) of the eye stalk. The eye itself is different in shape in sp. A, being flattened distally with a small inferior process and a large superior process flanking the flattened portion. It is also less heavily pigmented than in members of the *N. pugettensis* complex.

The third species occurs with "*Nebalia pugettensis*" in strongly organic sediments. It can be differentiated in the ♂ by the straight rather than strongly geniculate antennal peduncles. The females are not yet reliably separable.

Nebalia sp A is not attracted to strongly organic sediments, but can survive in them if placed there. It is also not attracted to baited traps which attract the other two species. *Nebalia sp A* is typically found (off La Jolla) in clean sandy sediments of relatively low organic content at depths of ca. 20m. It has also been taken off Palos Verdes to depths of 30m.

THANK YOU

Although President Ron Velarde and Treasurer Ann Dalkey are staying on for another term, two of our officers have stepped down, passing their SCAMIT duties to others. Our thanks to both Vice-President Larry Lovell and Secretary Diane O'Donohue for all the time and effort they put into maintaining and

improving the Newsletter, and our monthly programs. Even though they remain active members, they will be missed as officers.

Diagnostic Difficulties in Polychaetes and the Impact upon Species of the Genera *Pista* and *Glycera*

Thomas Parker
Marine Biology Laboratory
L. A. County Sanitation Districts

Observed differences in polychaete anatomy cannot always be reliably used as diagnostic characters for species distinction. Pleijel (1988) states that correct species level identifications are rare in many museum collections for the genus *Phyllodoce.* This is accounted for by reliance upon inadequate descriptions and that "determinations generally appear to be based on the traditions of different institutions." As a result "the characters used for separating the species in both keys and descriptions often merely add to the confusion."

Hilbig (1992) noted that the original description of *Glycera nana* was either incorrect or the treatment of a mixture of two species. Hartman (1950) synonomized *G. nana* with *Glycera capitata* based on specimen lots collected from northern and southern sites. Hartman additionally commented that if these were distinct species, the northern specimens would be *G. nana*, while the southern forms would be *G. capitata*. Hilbig has re-examined material and found them to be distinct species but opposite to the allocation suggested by Hartman. Thus the southern form specimens now belong to *G. nana* and the northern form specimens belong to *G. capitata.* Not surprisingly most current records for *Glycera* in Southern California have relied upon Hartman's earlier work and are therefore in need of change.

Identification of local *Pista* species also suffers from some diagnostic inadequacies. These difficulties are the result of confusion about the characters used for species diagnosis. Terminology and descriptions used for *Pista* in the literature are typically non-uniform and open to interpretation by the reader. SCAMIT (Vol.4. No.11) attempted to clarify the confusion surrounding some *Pista.* Characters used for diagnosis include presence or absence of numerous eyespots on the tentacular lobe, the size and shape of lappets on anterior segments, staining patterns, body shape, collection depth, branchial shape and structure, and the "handle" or shaft length on the thoracic uncini.

Emphasis in the literature (Hutchings and Glasby, 1988; Uebelacker & Johnson, 1984; Hobson & Banse, 1981; Hartman, 1969; Fauchald, 1977) has been placed on the use of branchia, lappets, and uncinal shafts as diagnostic characters. Various terms describe branchia. Unfortunately, this terminology is never defined and requires subsequent authors and readers to interpret what was the actual condition of the branchia and how it matches to the material they are examining. Terms such as branched, bushy, dendritically branched, plume shaped, clubbed, arborescent, tufted, richly branched, dendritically branched, and digitiform have all been relied upon as self-evident conditions. This level of non-uniform terminology obviously confounds efforts to produce reliable identifications.

The shaft length of the thoracic uncini has been routinely relied upon as less variable than soft tissue such as lappets or branchia. Confusion over diagnostic use of these shafts is now obvious. The early report by Moore (1923) describes the base of posterior thoracic uncini in *P. disjuncta* as a "delicate ligament." In a discussion on the generic characters of *Pista* and the contradictory descriptions of *Pista cristata,* Banse (1980) includes Day's (1967) statement that only uncini of the anterior thorax have posterior handles. However Banse later notes ". . . these elongations can usually be seen in the tori with double rows of uncini **only after macerating the dissected series of setae mechanically or chemically** (emphasis added); Therefore it is possible that the methods used by those authors failed to find the posterior handles." Glasby and Hutchings (1988) point out that most *Pista* species are known to possess long handled uncini in the anterior thoracic segments and that

most existing descriptions **do not include** (emphasis added) descriptions of posterior thoracic uncini. They speculate that "perhaps this feature is more widespread than appears." They describe long handled uncini as "pronounced chitinized shafts." Safronova (1988) commented: "The degree of chitinization of the setal (shaft) . . . is variable in both the genus and in species . . . (The degree varies with age in *P. bansei*) . . . this indicates that the taxonomic significance of this character . . . has been greatly overestimated."

Re-examination (shown below) of the original specimens used to create the SCAMIT voucher sheets for *Pista disjuncta* and *Pista* nr *disjuncta* reveals these specimens do not best fit these designations.

Specimen OC 60

size	70mm x 5mm
eyes	none
shafts	present and as long as head of uncini

Specimen OC 61

size	7mm x 1.5mm
eyes	present
shafts	present and approx. 2/3 as long as uncini head

Much of this problem arises from the method used to observe the uncinal shafts. Thoracic uncini dissected from the body wall often seem to possess little or no embedded shafts. The difficulty in viewing these handles clearly is the result of their being obscured by adjacent uncini and body wall tissue. Tightly packed double rowed uncini often are overlapped upon each other and obstruct viewing the base of the uncini. The refraction of light through soft tissue also seems to obscure the embedded shafts. However, if the same dissected fascicle is turned over on the microscope slide so the fascicle is viewed from the interior body wall perspective or fully dissected into individual uncini, then long handles are evident. Numerous dissections of uncini from *Pista disjuncta* specimens have shown that nearly all possess long straight uncinal shafts. Based solely upon the possession of long handled shafts on posterior thoracic uncini, these specimens better fit the published description for *Pista fasciata.*

Additionally, the use of descriptions based upon relative lappet size and shape, presence of eyespots, and general body dimensions and robustness have been attempted as diagnostic features of *Pista* species. Lappets listed in publications as large, small, subtriangular, elongate, short, well-developed, rounded, or reduced have all been applied by authors. SCAMIT emphasized lappet size and the degree of distal roundness or pointedness. Eyespots are more commonly seen in small specimens (<20 mm), but the degree to which they are seen in larger specimens is not known and they are uniformly absent from the largest specimens. These conditions need to be more accurately illustrated and critically evaluated against body size and shape before they are accepted as diagnostic conditions.

Little confusion exists for taxa with drastically unique morphologies (e.g. *Pista alata*). Diagnosis may be much more difficult for species such as *P. disjuncta* and *P. fasciata*. Their descriptions are based upon less distinct morphologies, inadequately studied characters, or poorly defined terms. Possibly all designations of *P. disjuncta*, *P. fasciata*, and *P.* nr. *disjuncta* have been applied to a sibling species group. It is also possible that all these designations have fallen into the trap described by Pleijel.

Knowlton (1993) comments that sibling species are common partly due to inadequate morphological studies. She also concludes that any single character is inadequate to reliably separate closely related species because such a character may be defining the species in one situation, but only represent a polymorphism in another situation. If we speculate that *Pista* diagnosis problems are the result of confusion over a group of sibling species, we are still left with published descriptions that do not match the names applied to specimens examined. As long as taxonomists are willing to rely upon one or two characters for attempted diagnosis of *Pista* species,

we must recognize what is currently the published description and re-examine material.

Though *Pista disjuncta* was originally described from Southern California material and *Pista fasciata* was described from the Red Sea, the current published description of *Pista fasciata* better fits the local material routinely referred to *Pista disjuncta*. It is recommended the name *Pista fasciata* be used for those specimens that are now commonly identified as *Pista disjuncta*. A more complete resolution to this diagnostic problem will require a re-examination of type or paratype specimens for contrast to local *Pista* specimens.

Recent review of both *Pista disjuncta* and *Glycera capitata* occurred as part of the process to create the newly issued species list from SCAMIT (1994). This review concluded that neither *G. capitata* nor *P. disjuncta* are currently valid names for this region.

Literature Cited

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SCAMIT TREASURY SUMMARY, 1993-94

During the past fiscal year, April 1993 thrugh March 1994, the major expense was the newsletter for printing, postage, and supplies, $2314.32. The contract with SCCWRP for creating a list of southern California soft bottom species, awarded in January 1993, was completed and paid in full in December 1993. This money will be used for SCAMIT's publication support program. SCAMIT's secondary source of income, $1230.00, came from membership dues. The following is a summary of the expenses and income:

Expenses	
Newletter	$1856.90
Workshops	345.00
Miscellaneous	18.58
Total	**$2677.79**
Income	
SCCWRP Contract	$15000.00
Dues	1230.00
Interest	238.17
T-Shirts	14.00
Donations	0
Miscellaneous	60.00
Total	**$16542.17**
Account balances (March 31, 1994)	
Checking	$ 711.81
Savings	19782.72
Total	**$20494.53**

SCAMIT OFFICERS:
If you need any other information concerning SCAMIT please feel free to contact any of the officers.

President	Ron Velarde	(619)692-4903
Vice-President	Don Cadien	(310)830-2400 ext. 403
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